TRAFFIC ENGINEERING

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COVER: Fore-runner of today's modern urban expressways is Washington's Rock Creek Parkway. This picture shows the Parkway under (from bottom to top) K Street, Pennsylvania Avenue and M Street. (Courtesy of John H. Mitton.)

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Frankly Speaking

The index to Volume XVII, which appears as a supplement to this issue, reveals that parking was one of the primary subjects of discussion in TRAFFIC ENGINEERING during the past fiscal year. The numerous articles on this subject impress upon us the need for further investigation of this most controversial subject. The mere fact that traffic engineers are still doubtful as to the proper solution of the parking problem reflects in no small measure the confusion and irritation displayed by the motoring public.

When streets and roads were first provided they were designed primarily as a means of serving *moving* vehicles: first the horse drawn wagon, later the motor vehicle. These public thoroughfares were not considered storage areas. And as these roads and streets have been developed into highly efficient motor ways, provisions are still lacking for the storage of motor vehicles.

Street and highway engineers, neither by tradition nor by modern practice, have been responsible for the provision of parking on streets and highways. However, because of the street and highway engineer's interest in expediting the safe movement of motor traffic, he has been forced to become deeply involved in the parking problem. It was necessary for him first to provide order and uniformity for street parking in order to eliminate interference to the traffic stream. Later, as the volume of traffic increased, it has been necessary for the engineer to emphasize the primary purpose of streets and highways, and to point to the parking problem as a problem of economics.

By providing streets and highways for movement and referring the parking problem to the economist, the engineer is not evading his responsibility to society. He is, in fact, recognizing that there are certain aspects of highway transport which are not altogether technical. The engineer acknowledges the economist's place in the field of highway transport.

As the new fiscal year unfolds for the traffic engineer, it will become more apparent that proper solution to our traffic problems will require greater cooperation between all interested agencies of highway transport and public approval of traffic facilities can be obtained only after these agencies reach accord.

Robert O. Swain

Editor

Independence Day Traffic - - Then and Now

by WILLIAM G. ELIOT, 3rd, *Assoc. Member, ITE*

ON THE Fourth of July just 20 years ago the State Roads Commission of Maryland made, on the main highway between Baltimore and Washington, D. C., one of the earliest aerial traffic surveys. A series of overlapping photographs were taken from a chartered airplane, covering the 29 miles of highway between the two cities. (Proceedings, Highway Research Board, 1928, pp. 106-115).

Supplementing the aerial photographs, the late Mr. A. B. Fletcher of the U. S. Bureau of Public Roads made, on that same afternoon, a series of traffic photographs from an overhead crossing of the highway a short distance north of Beltsville, Maryland. The pictures were taken at intervals of exactly one minute from 4 P.M. to 5 P.M., with the thought that such a sequence would give a qualitative portrayal of the type of traffic that is ordinarily measured quantitatively by traffic counts.

Believing that similar photographs at a more recent date might make an interesting comparison, the U. S. Public Roads Administration repeated the experiment on July 4, 1942 and again this year, just 15 years and 20 years, respectively, after the first set of pictures was made. In each case the pictures were taken at one-minute intervals between 4 and 5 P.M., and a traffic count made for the same period.

Less Traffic

The illustrations show corresponding pictures on the three dates for several minutes chosen as typical. The most conspicuous feature of the comparison is an apparent loss of traffic over the 20-year period, in spite of the obvious improvement of the highway and the well-known increase in motor-vehicle traffic generally during that time.

Actually the 1947 traffic was only 8.5 per cent greater than that of 1927, though it exceeded the wartime traffic of 1942 by nearly 50 per cent. The total traffic for the hour on the three dates was as follows:

1927	736 vehicles
1942	537 vehicles
1947	798 vehicles

These rather surprising figures can be accounted for in large measure by an accident of the calendar. In 1927 the Fourth of July fell on Monday, and the afternoon traffic doubtless included many returning from holiday trips. This year the Fourth of July was a Friday, the first day of a 3-day week-end holiday. By afternoon the peak of "outbound" vacation travel was past and the homeward rush was not due until two days later. Data supplied by the Maryland State Roads Commission show an average weekday traffic between 4 and 5 P.M. of 1,156 vehicles at the same location, well above that observed on the holiday.

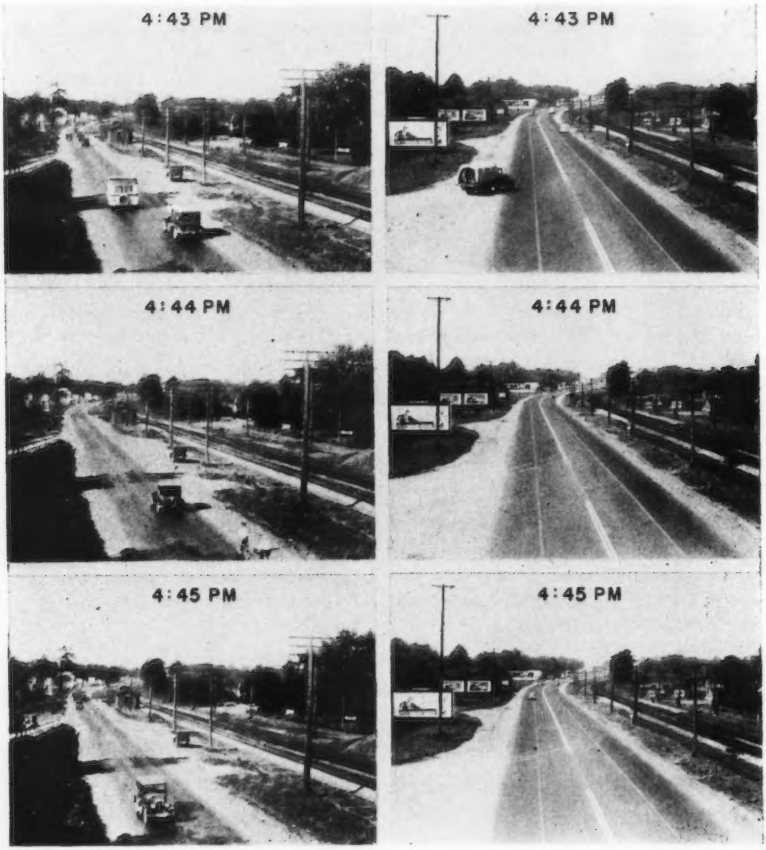
Wartime Traffic

In 1942 there was relatively little holiday traffic as such. Gasoline restrictions were in force, and government employees in Washington were working 6 days a week without holidays. The Fourth fell on Saturday, and those who had hoarded enough gasoline for a trip were not likely to hasten back the same afternoon.

It may further be noted that Washington was not operating on

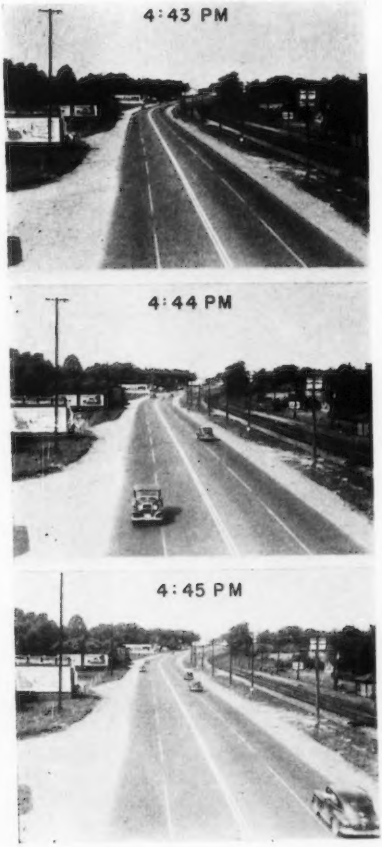
JULY 4th TRAFFIC ON THE BALTIMORE-

1927 1942



WASHINGTON HIGHWAY

1947



"daylight-saving" time in 1927. Possibly the evening peak in traffic develops somewhat later as daylight is prolonged.

These factors may adequately account for the relatively small increase in the 1947 traffic. They do not explain why there are actually fewer vehicles visible in the 1947 picture than in those of 20 years ago. In 1927 there was no picture during the hour that did not show at least one vehicle. In 1942 and 1947 the camera caught one view of an altogether deserted road.

Speed is Factor

Many photographs of newly-widened highways are so bare of traffic as to cause wonder whether the improvements were really justified. This apparent absence of traffic, however, is partly an illusion resulting from increased speed. Other things remaining equal, the number of vehicles occupying a given length of highway must be inversely proportional to their speed. The present series of photographs offers an interesting demonstration of this theorem.

The report of the 1927 aerial survey states that the observed speeds of traffic during the survey were from 20 to 30 miles per hour. Recent studies justify the assumption that the average speed in 1947 was not far from 45 miles per hour at the point shown in the photographs. In 1942, under wartime controls, speeds were limited and did not greatly exceed 35 miles per hour.

From the 61 pictures from 4:00 to

The author, having sacrificed his holiday to maintain an unbroken series of historic pictures, here makes the best of a disappointing, though not altogether unforeseen, situation. His searching analysis of his data is offered as an example to other traffic engineers who must prepare a report with nothing much to work on. He dedicates this scientific contribution to his wife and daughter, whose services in counting the traffic are gratefully acknowledged.

5:00 P.M., inclusive, and from the traffic counts, the following data were derived:

	1927	1942	1947
Av. no. of vehicles visible per picture	6.3	3.5	4.7
Av. volume of traffic per minute	12.3	9.0	13.3
Percentage of total passing vehicles shown in pictures	51	39	35

These percentages (used because they have the effect of canceling out differences in volume) are compared with the estimates of speed as follows:

	1927	1942	1947
Percentage of total vehicles visible in pictures	51	39	35
Average speed, estimated (miles per hour)	30	38	45

The closeness of the inverse ratio of these values is more than a coincidence. It is assumed, of course, that the visible length of highway is about the same for all three sets of photographs, as it certainly is for the last two.

Five-Minute Counts

Although a photographic technique is not likely to be used merely for counting traffic, the pictures were checked to compare the number of visible vehicles with the total traffic for intervals of 5 minutes. In both 1942 and 1947 the traffic count was made by 5-minute periods. The percentage of vehicles caught in the photographs ranged from 27 to 53 during such brief periods, showing the unreliability of short-time counts. The over-all percentage necessarily depends on the length of road included in the view, and on the speed. As previously pointed out, for the same length of road the percentage did vary in reasonably close inverse ratio to the estimated speed.

Finally, these pictures suggest a possible means of determining the average speed of traffic. If the exact length of the visible highway is known, the percentage of total traffic visible in pictures taken at 1-minute intervals must equal the percentage ratio of the measured length of highway to the average distance traveled per minute by the vehicles. If, in this case, the roadway is visible for 1,400 feet, the following tabulation may be set up:

	1927	1942	1947
Percentage of vehicles shown in 1,400 feet	51	39	35
Distance (in feet) necessary to show 100 per cent of vehicles (i.e., dist. traveled per min.)	2,745	3,590	4,000
Equivalent in miles per hour	31	41	45

The distance of 1,400 feet, here used, was not measured on the ground, but was arbitrarily assumed because it was consistent with the previously estimated speeds. The calculation, therefore, merely demonstrates a technique, proving nothing as to the correctness of the original speed estimates.

As a historical record the pictures are not altogether satisfactory. The experience suggests that if a similar series of pictures were to be attempted in the future, Labor Day should be chosen because it always falls on the same day of the week. Despite the aberrations of traffic in the present series, however, the photographs are interesting records of an important highway. In another five years it is quite probable that a wholly new express highway will connect the two cities, and that the traffic on the old route will have fallen off to a largely local movement.

White Best Bridge Color

by RALPH W. EMERSON

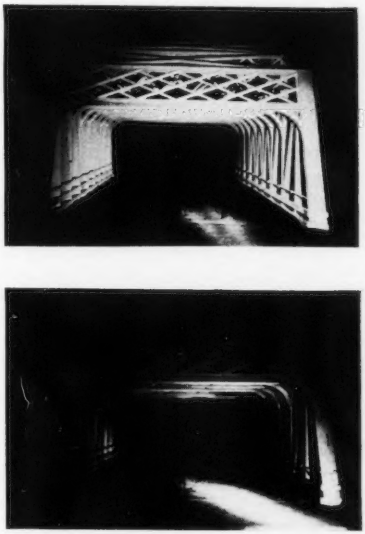
WHITE PAINT provides maximum visibility for highway bridges in the opinion of the Scientific Section of the National Paint, Varnish and Lacquer Association, Inc. In some instances, in unlighted areas, luminous paint, which is practically white in the daytime, may be advantageous as a future development.

It is recognized that the degree of traffic hazard as related to the visibility of a bridge varies according to location and lighting, but both by day and by night, and both for motorists and for pedestrians, white is the best safeguard against accidents due to lack of visibility. This idea is in line with the practice of painting white the guard rails and posts used as approaches to bridges. In too many cases, the bridges themselves are now painted in dark colors, or left the natural color of the concrete or masonry, with consequent lack of contrast against background of trees, earth, or roadway. If the bridge is located in an area which is permanently well lighted, both by day and by night, this may not be so serious, but in country or other areas where there is no artificial lighting at night, there is a serious hazard especially where pedestrians may be walking on the roadway.

Motorist Has Advantage

The motorist, sitting behind his headlights, has the advantage of illumination as he approaches the bridge, but the pedestrian lacks that advantage. The man or woman on a bicycle is as badly off as the pedestrian, and in country regions where horse-drawn vehicles are still common, the hazard also may apply to that type of transportation.

On bridges in unlighted areas, the future use of luminous paint on bridges and their approaches may have real value. While luminous paint is not as white as regular white paint, it fulfills practically the same purpose in the daytime, and at night, after having been activated by natural light during the daylight hours, may be expected to glow for the greater part, if not all, of the hours of darkness.



The ability of white paint to reflect more light than dark grey is shown by the two pictures above. A white painted bridge is at the top; a grey painted structure, at the bottom.

Courtesy New Jersey Zinc Co.

Needs Protection

Luminescent paints for exterior use have not yet been developed to the same degree of durability as regular paint, and their use is likely to require seasonal repainting. In any case, it is

Mr. Emerson is Director of Public Relations National Paint, Varnish and Lacquer Association, Washington, D. C.

necessary to protect paints used on bridges and approaches with a coating of clear varnish. However, it is quite possible that in numerous instances, more frequent repainting and revarnishing would be a sound investment in helping to prevent accidents—especially to those who do not have the benefit of automobile headlights.

During the wartime blackouts, more use of luminous paint was advocated than in any previous period, and there is very good reason why it should be just as useful in peacetime in areas of darkness, when further developed. It should be recognized that at present, outdoor use of luminous paint remains to be practically demonstrated and should be considered as experimental.

NEW DEVELOPMENTS IN TRAFFIC ENGINEERING

by CHARLES S. LECRAW, JR.
Associate Editor

Features Traffic Engineering

The planning aspects of traffic engineering are discussed in an article "The New Highway" in the August 1947 issue of *Fortune* magazine. The problems involved in locating an expressway in the Ansonia-Derby-Shelton area of Connecticut are the subject of the article; and this survey is shown as a typical present day study of traffic used to locate roads properly—as *Fortune* puts it, "where the traffic wants to go." As all traffic engineers know, traffic wants to go into or near the central districts of our cities and it becomes difficult to prove to laymen the ultimate benefits of locating highways in areas where land values are high.

The *Fortune* article treats in a crystal-clear manner the well known ideas connected with such a problem: economic valuation of time saving, predominant shortness of motor vehicle trips, amount of travel within the cities as compared to rural areas. But the manner in which these ideas are explained is excellent, and the article should be required reading for every traffic engineer who finds it necessary to translate technical data into the layman's language in order to accomplish his mission. And what traffic engineer doesn't encounter this problem as a daily part of his job?

Merritt Parkway Speed Study

The Division of Highway Control, Connecticut State Highway Department, has released a speed study of the Merritt Parkway. The Parkway is located in the Southwestern section of Connecticut and connects New York's Hutchinson River Parkway with the Wilbur Cross Parkway at the Housatonic River. The study, prepared by Earle W. Osterhoudt (Member ITE) involves determination of maximum safe speeds for 46 curve locations along the 37.5 mile parkway. All methods of computing maximum safe speeds were employed.

The study produced many general findings which are of widespread interest. Among these may be listed the following:

Non-passing sight distance is the immediate limiting factor in the determination of safe speeds for several locations along the parkway. In each case, observed speeds were well above the non-passing sight distance speed, which indicates that the driver does not normally consider this feature in his driving habit.

In analyzing parkway accidents, an indication was found that certain design features were contributing factors to the accidents. Among these are: curbs which restrict lateral movement, medial dividers which narrow at over-passes, shoulders of insufficient width to permit a vehicle to stop clear of the travel way; and acceleration or deceleration lanes which do not permit vehicles to enter or leave the traffic stream at the speed of the main traffic flow.

Portland Signal Plan

by F. T. FOWLER

THE problem of control of vehicular and pedestrian traffic on existing streets within cities by the use of mechanically operated signals has been under study by traffic engineers for years. *The Institute of Traffic Engineers* has attempted to set up standards for such traffic signal installations, and the plan which has been adopted as a standard is the four-post type of installation on the far right hand side of the intersection with 3-light heads set at a 90 degree angle so as to provide two signal lights for vehicle operators in each direction and also to provide lights which were visible to pedestrians on either side of the street.

The center suspended type of signal has not been approved by traffic engineers in general for many reasons, one of which is the fact that it is generally too close to the stop line for it to be readily visible to the vehicle operator. Also, it is in such a position that the pedestrian is not able to see it readily, and consequently continues to walk after the signal has changed.

Standard Needed

In this discussion I am not attempting to indicate the sequence of the lights because this has no particular bearing on the problem of pedestrian control. I do feel, however, that some standard of sequence for the vehicular control signals should be adopted so that vehicle operators could more easily understand the regulations in different states and cities.

The sequence of traffic signal lights in this city is at present—the green light followed by a short amber period followed by the red. We have found that additional safety is provided by allowing a short overlap of the red period before the green signal comes on for the cross traffic. This tends to prevent the running of the amber light with its great accident hazard.

In any event, the attempt to control pedestrians with the red, amber and green signals has never been satisfactory. An amber period of three seconds followed by two seconds overlap of red will at the most give pedestrians only five seconds of clearance time. This is not sufficient time for them to cross, even a narrow roadway. Therefore, the pedestrian is left in the center of the roadway, and unless the vehicle operator gives him the right-of-way, he is placed in a hazardous position. With this idea in mind, the use of walk-wait signals has been advocated for some time. The *Institute of Traffic Engineers* has experimented with this type of signal and has adopted certain standard lenses to be used for this purpose.

Lack Pedestrian Respect

Prior to the war, the City of Portland in cooperation with the Oregon State Highway Department made a traffic signal installation in the central west side business area of Portland on SW Fourth Avenue. This installation had a standard four-post type of vehicular signal plus walk-wait signals placed on the same post at an elevation of seven feet above the sidewalk. These signals were timed in such a manner that the "wait" signal would come on before the amber light a sufficient length of time in order to allow clearance time for pedestrians. Experience has proved that this type of installation will not work since the pedestrian will continue to walk by the green light as long as it is visible

Mr. Fowler is traffic engineer of the City of Portland.

to him. A concerted effort by the police bureau to enforce regulations failed because pedestrians had been schooled to observe the green light, and not enough officers could be allocated to this area to compel observance of the walk-wait signals.

Following this type of installation, the late John Beakey, who was then traffic engineer for the Oregon State Highway Department, and myself, devised a system of traffic signal installation which we felt would be a distinct improvement over the type installed on SW Fourth Avenue. This installation called for vehicle signals to be installed on the far side of the intersection, suspended over the roadway either on span wire or a mast arm installation. Walk-wait signals were then installed on the corners to provide a signal unit directly across the street in front of the pedestrian at or near the level of his eyes. Mr. Beakey proceeded with the installation of this type of signal at several intersections in the City of Klamath Falls, Oregon. This system was placed in operation just before the start of the war and has been giving excellent service since that time. There has, however, been one fault to find with this installation, and that is the pedestrian can readily see the green light and continues to walk, in many cases, as long as the green light is visible. This type of installation was considered to be the best by Mr. Beakey and myself and it was adopted for all signals in the City of Portland, and new installations were made under this plan on NE Union Avenue and on N. and NE Lombard Street.

Experimentation Continued

During the war period I have continued to experiment with different types of louvres which could be placed in the visors of the vehicular signals in order to cut off the visibility to the pedestrian standing on the sidewalk corner. Various methods were used, but it was found that the use of a smooth surface on the louvre allowed too much light to be reflected and provided for a sufficient amount of visibility to the pedestrian so that proper control could not be obtained.

Experiments proved that it was possible to corrugate the thin sheet of aluminum and still be able to shape it in the proper form. These corrugations broke up the light rays in such a manner that except in extreme darkness and on rainy or foggy days, visibility to the pedestrian was reduced to a point where it was not a factor in pedestrian control. These louvres were designed as a circular tube approximately 8 inches in diameter and 5 inches deep, with vertical fins 4 inches deep spaced one inch apart. These fins were spot welded to the tube and the whole unit painted a dull black. They were so designed that they would slip into the standard traffic signal visor, either the cutaway type or 8-inch Tunnel visor. We have now completed the installation of 20 intersections in the central business areas with the suspended type vehicle signal with louvres and pedestrian walk-wait signals around the intersection.

Use ITE Standard

The problem in regard to the walk-wait signal lenses was solved by the use of the standard *Institute of Traffic Engineers* "walk" lens, which I believe gives the best visibility possible for this size of unit, and a "wait" lens which was made for us by the Kopp Glass Company and furnished through any of the major signal manufacturing companies. This lens is made on the standard *Institute of Traffic Engineers* "wait" lens mold but of a special dark amber glass. The lens, instead of being black for the entire surface except the letters, is left open at top and bottom with a black band across the center surround-

ing the letters. This gives us a distinct color difference between the "walk" lens and the "wait" lens and also provides a difference in form so that people can readily determine which light is on, whether they are able to read the wording on it or not. The amber color does not provide a signal which will interfere with the vehicular traffic, and in general the placing of these signals is such that they are not readily visible to the vehicle operator.

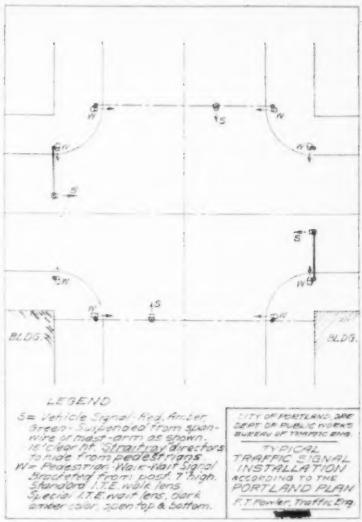
Better Observance

We have found that there is at least 50 per cent better observance of the signals by the pedestrian following this type of installation. The tendency to crowd into the street while waiting for the signal to change has been reduced with a corresponding improvement in the vehicular traffic movement.

At the present time, we are operating the signals in such a manner that the "walk" signal comes on at the same time as the green signal. It is our intention later to gradually bring the "walk" signal on later than the green signal so as to allow the right turn movement at the intersection to start before the pedestrians have a chance to block the roadway. With the proper type of control having sufficient circuits provided, this separate control can readily be cared for and the desired changes made at any time.

Called "Portland Plan"

In order to give a better idea of the new type of signal installation, which we have designated as the Portland Plan for want of any better name, I have prepared a sketched plan of a typical traffic signal installation, giving the different possible methods of vehicular signal installation either by mast arm from a post on the sidewalk or on span wire between poles on the street, or on span wire between


BLDG.
BLDG.
LEGEND
S= Vehicle Signal: Red, Amber, Green: Suspended from span-wire or mast arm as shown. (6" clear of straight directors to side from pedestrians.
W= Pedestrian Walk-Wait Signal: Supported from back 7' high. Standard I.T.E. walk lens. Special I.T.E. wait lens, dark amber color, 2 cen tip & bottom.
CITY OF PORTLAND, ORE. DEPT. OF PUBLIC WORKS BUREAU OF TRAFFIC ENG.
TYPICAL TRAFFIC SIGNAL INSTALLATION ACCORDING TO THE PORTLAND PLAN
F. T. Fowler, Traffic Eng.

buildings. These signals are indicated by the letter "S" on the plan and are standard red, amber and green signals. The pedestrian walk-wait signals, indicated by the letter "W" on the plan, are bracketed from posts on the sidewalk corners. In general, they are placed seven feet above the sidewalk so as to clear pedestrians.

It is my hope that traffic engineers will study this plan and experiment with it in order to establish to their own satisfaction the merits of this system as compared to the red, amber and green system of traffic control for both vehicles and pedestrians. I hope that the *Institute of Traffic Engineers* will refer this matter to their committees and give the profession the results of their studies. Only in this manner can we hope to obtain the best possible results and work toward a standardized system of traffic control which will solve one of our difficult problems in a better and more efficient manner.

Milestones or Millstones

(Editor's Note: This article was prepared for Traffic Engineering by the Inter-Industry Highway Safety Committee.)

MORE than a half century ago the "Plimsoll Mark" was adopted following a load-line conference concerned with increased safety for sea-going vessels. Because of the reforms which followed, Plimsoll became known as the "Sailor's Friend".

When President Truman summoned the nation's leading traffic safety experts to Washington for a Highway Safety Conference in 1946 and again in 1947 a similar scene was reenacted. This time a far different transportation facility was endangered. However, the proposals adopted as a result of these conferences are destined to be equally historical in value. The "Action Program" resulting from these meetings offers a complete pattern of activities of national and local scope which can materially reduce traffic hazards and increase the safety and efficiency of our streets and highways.

Action Program is Milestone

In the days of Plimsoll, a white disk symbolic of safety at sea became known and recognized as the means of eliminating sea-going risks, and protected the world against the horrors of "coffin ships". The "Action Program" of today offers similar protection and is steadily becoming recognized as a milestone in the highway safety movement throughout the United States.

Following the first Highway Safety Conference, the President directed an appeal specifically to the automotive industries, urging their active support in promoting the program in every state and community. In response to this appeal, the automobile, petroleum and rubber industries, acting through their trade associations, launched the Inter-Industry Highway Safety Committee. Through this cooperative and public-spirited effort, the dealers of the three industries have been given the opportunity to become known as the "driver's friend".

The Inter-Industry Highway Safety Committee consists of two representatives each from the Automobile Manufacturers Association, the American Petroleum Institute, the Rubber Manufacturers Association and the National Automobile Dealers Association. They include: L. W. Slack, Vice-President and General Sales Manager, Packard Motor Car Company, who was named Chairman of the Committee; W. G. Lewellen, Vice-President, General Motors Corporation; L. T. Kittinger, Vice-President, Shell Oil Company; L. S. Wescoat, President, Pure Oil Company; J. J. Newman, Vice-President, the B. F. Goodrich Company; H. D. Tompkins, Vice-President, Firestone Tire and Rubber Company; M. O. Anderson, President of the National Automobile Dealers Association, and William L. Mallon, NADA Regional Vice-President. The Automotive Safety Foundation will act as Consulants to the Committee.

Headquarters Established

National headquarters office was established in Washington, D. C., with M. R. Darlington, Jr. serving as Managing Director.

The primary purpose of the National Committee is to mobilize the dealers of the three industries solidly behind the programs of public officials and civic groups concerned with traffic safety problems. As emphasized in the "Action Program", safety problems are local—and must be solved on the community level. Every owner or operator of a dealership, service station or retail outlet has a personal investment in his community which can be

seriously affected by traffic accidents, congestion, delays and inadequate transportation facilities. Today all these factors detrimental to community welfare are becoming increasingly critical.

The functions of a state committee are: (1) Appointment and activation of local committees; (2) Stimulation of interest through the distribution of safety materials; (3) Support of official safety programs, beginning with an offer of cooperation with the governor of each state, other state officials and the heads of civic and service organizations active in the field.

Local committees in turn will: (1) Enlist the solid support of local dealers of the three industries for projects which accord with the recommendations of the President's Conference. (2) Meet with appropriate local officials and the heads of civic and business groups and arrange dealer assistance in sound community safety programs. A record of their activities will then be transmitted to their state committee.

Local Assistance

Decision as to activities to be undertaken will in every case depend upon local needs. In most instances, the favored procedure is to confer with the public officials concerned with safety problems, and discover what is being done currently and what safety activity is contemplated for the future. The local group then offers to cooperate in such programs as it is best qualified to aid.

Recognition of the progress which the Inter-Industry Committee has already made is contained in a letter dispatched from the White House to Chairman Slack following the 1947 President's Highway Safety Conference. In his message, President Truman said in part:

"The extent to which your Committee has succeeded in mobilizing the automotive groups in response to my request last fall to the Automotive Safety Foundation is encouraging.

"The practical value of the "Action Program" in meeting this national problem was fully confirmed by delegates attending the Conference. I hope that the dealers and others in the automotive group throughout the country will intensify their efforts in support of its application in all states and communities."

A white painted disc, such as Plimsoll used to indicate a ship's safe loadline, cannot be placed at the exact spot where a traffic accident may occur, or transportation efficiency will be hindered. But our national safety milestone—the "Action Program"—does present a logical "safety mark" through the application of tested methods of education, enforcement and engineering which can drastically reduce accidents. By coordinated efforts the Inter-Industry Highway Safety Committees throughout the nation can help lift the millstones which hamper our everyday safety and replace them with definite "safety marks" indicating an alert and alive community.

RESEARCH BOARD TO MEET IN DECEMBER

The 27th Annual Meeting of the Highway Research Board will be held December 2 through 5 at the National Academy of Sciences and National Research Council, Washington, D. C.

It is expected that this meeting will exceed in attendance the annual meeting of the Board held in Washington last December when 700 persons registered, and 71 technical topics were presented and discussed at 18 separate public sessions. Thirty-nine state highway departments, 28 colleges, 3 Canadian provinces, and 13 nations other than Canada and the United States were represented.

PARKING LOT METERS SUCCESSFUL IN MICHIGAN

Back in 1944 the City of St. Joseph, Michigan, was cognizant of a dire parking problem, which exists in cities of all sizes: off-street parking.

The city at that time arranged for the temporary use of a parking lot, and found it very successful, despite its unimproved nature. In the spring of 1947, St. Joseph purchased this lot with the thought of installing parking meters and improving the whole area.

The lot, 132 x 132 feet, was divided east and west into two parking lanes, each lane being 60 feet wide and allowing for a total of four rows of cars parked at right angles on either side of the lane. Entrance was provided from both the alley and the street side. Sidewalks were built in the center of the lot between the two parking lanes, with meters either side of the walk. Walks were also built at the north and south of the lot for meters and for pedestrian use, avoiding any necessity of walking among the cars.

The lot was paved with stabilized gravel base and asphalt surface. The paving sloped concave from the walk to the center of the lane to take care of storm water. Sixty-four meters were installed on the lot, allowing 8 feet 3 inches center to center of meters, which provided ample space for the cars. Automatic parking meters were used. They take one to five nickels or one quarter and are set for two hours for each nickel or ten hours for a quarter. The meters operate from 9 A.M. to 6 P.M. except Sundays and holidays. Results to date and comments from the merchants and public have been most favorable. Average weekly collection is about $60.00, with the lot running about two-thirds full at all times. The total investment on the part of the city for land, improvements and meters was $27,790.22. The city expects the lot to be filled most of the time in the future, and intends to liquidate the entire project within ten years.

INTERSTATE HIGHWAY SYSTEM RECEIVES FEDERAL APPROVAL

Routes selected by the State highway departments for inclusion in a national system of interstate highways have been approved with few changes by Federal Works Administrator, Major General Philip B. Fleming, the Public Roads Administration of the Federal Works Agency announced recently.

The new interstate system as mapped by the State highway departments, in cooperation with the Public Roads Administration, comprises the most heavily traveled highways in the present Federal-aid system, and includes extensions of the system through urban areas.

Final designation of routes in the system was reached after careful consideration of proposed routes and a series of conferences between representatives of State highway departments and field officers of Public Roads to settle differences involving proposed alternate routes and connections at State lines.

The integrated system, as approved by the Federal Works Administrator, consists of north-and-south, east-and-west, and diagonal routes that will make it possible to travel from any section of the country to any other section by a direct route.

The system contains 37,681 miles of the Nation's principal highways, including 2,882 miles of urban thoroughfares. Additional urban circumferential and distributing routes are to be designated later, and 2,319 miles have been reserved for these routes.

The approved map shows the general location of all routes. Principal cities to be connected are indicated but details of the exact location are left for determination as construction projects are planned.

Rural sections of the interstate system comprise only 1.1 per cent of all rural roads but carry 20 per cent of all rural traffic. The system reaches 42 State capital cities and will serve directly 182 of the 199 cities in the country having a population of 50,000 or more persons. Average traffic on routes comprising the system, exclusive of urban sections, was 2,693 vehicles per day in 1941 as compared with 1,439 on the Federal-aid system, 972 on State highways and 155 on all rural roads.

In many large cities depressed or elevated expressways will be built, making possible city travel at an average speed of 35 to 45 miles an hour, without stops for traffic signals and free of interference by cross-traffic. Depressed portions of expressways will be supplemented by parallel frontage roads for "local" traffic, and bridges will be constructed at intersections to serve cross-traffic. The urban expressways will be integral parts of the national interstate system.

In recommending routes for inclusion in the system, State highway departments were governed by provisions of the Federal-aid Highway Act of 1944, which required that "there shall be designated in the continental United States a national system of interstate highways not exceeding 40,000 miles in extent, so located as to connect by routes as direct as practicable the principal metropolitan areas, cities and industrial centers, to serve the national defense and to connect at suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico."

The act further required that "the routes of the national system of interstate highways shall be selected by joint action of the State highway departments of each State and the adjoining States," and in another provision required approval by the Federal Works Administrator.

The Federal-aid Highway Act of 1944 authorized $500,000,000 in each of the three fiscal years following the war to assist the States in developing a three billion dollar highway program which would include improvements on the regular Federal-aid system, on highways in urban areas where the population is 5,000 or more, and on a Federal-aid system of secondary or farm-to-market roads in each State.

The sum of $225,000,000 was set aside from the authorized annual appropriation for improvements on highways in the regular Federal-aid system; $125,000,000 was made available for urban sections of the system only, including expressways, circumferential and distribution routes; and $150,000,000 was earmarked for State systems of secondary roads.

No specified sum was provided for development of the national interstate system; however, since the system is made a part of the Federal-aid system, the amounts provided for this system are available for the interstate system. The appropriations authorized have already been apportioned among the States.

In most States half of the cost of Federal-aid projects and up to one-third of the cost of right-of-way may be financed by the Federal Government. The exceptions are States containing large areas of land in the public domain where a higher rate of Federal participation is permitted.

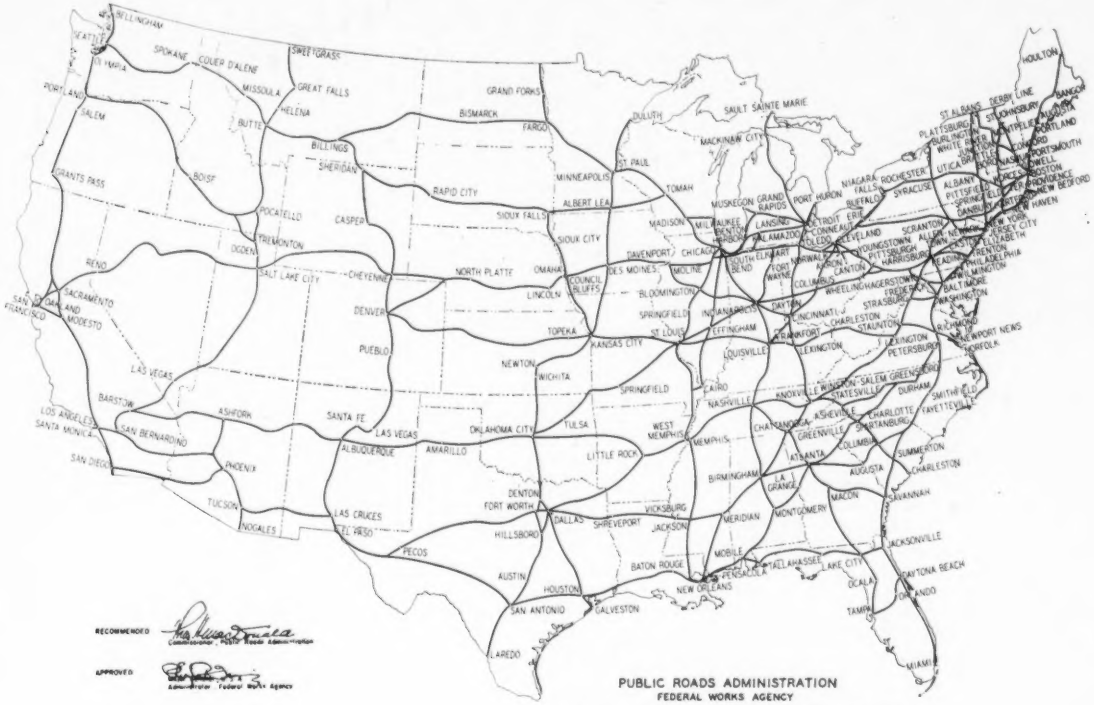
Although the new interstate system follows, in general, the principal routes in the present Federal-aid system, it may be necessary in many instances to relocate existing highways or build alternate routes for express traffic in order to meet essential standards of width, grade, alinement, and control of access, Public Roads Commissioner Thomas H. MacDonald said.

Routes included in the system, as well as the adopted standards of design and construction, conform in broad outline to recommendations contained in the report submitted to President Roosevelt in 1944 by the National Interregional Highway Committee, of which Commissioner MacDonald was chairman.

Design standards for the system approved by the American Association of State Highway Officials on August 1, 1945, call for four-lane divided highways wherever the traffic volume is 800 motor vehicles in peak hours. For such highways in rural areas, a right-of-way of 250 feet is advocated as desirable. Traffic lanes 12 feet wide are recommended on all heavily traveled routes. Where traffic density exceeds 3,000 vehicles in peak hours, elimination of all cross traffic at grade is advocated.

Control of access to the interstate routes, particularly in and near cities, is considered essential. Large streams of traffic cannot move swiftly and safely if obstructed continually by vehicles entering and leaving an express route. Access points are to be placed as frequently as they are needed, but accomplishment of the main objective prevents permitting access at every cross road or street, business place, or residence. Many States do not yet have adequate legal authority to control access.

The National Interregional Highway Committee's report was transmitted to Congress by the President on January 12, 1944, and in December of that year Congress enacted legislation requiring that the interstate sys-



PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

NATIONAL SYSTEM OF INTERSTATE HIGHWAYS

SELECTED BY JOINT ACTION OF THE SEVERAL STATE HIGHWAY DEPARTMENTS
AS MODIFIED AND APPROVED

tem be designated and authorizing Federal appropriations for highway construction in the first three postwar fiscal years.

State highway departments were requested to select routes for inclusion in the national interstate system and replies were received from all States in 1945. Since that time representatives of State highway departments and the Public Roads Administration have been engaged in ironing out differences concerning alternate routes and connections at State boundaries.

Meanwhile work has been started on improvements on sections of the Federal-aid system included in the national interstate system, for which plans had been completed prior to V-J Day. Commissioner MacDonald emphasized, however, that development of a national interstate system of highways embodying standards of design recommended by the Public Roads Administration and the American Association of State Highway Officials is a long-range program to be carried out over a period of years.

DISPLAY MODEL ROTARY

A rotary traffic circle complete with a wide variety of flowers, plants, shrubbery, flagstone walks, and edged with granite curbing, was erected in the outdoor parking area of Boston's Commonwealth Armory, for the first postwar New England Highway Exposition held in October.

The traffic circle, which was a model of beauty and utility, measured 75 feet in diameter. There were 24 different botanical attractions displayed, and the flagstone walks in the center converged upon a ten-ton granite flagpole base accommodating a 50-foot high flagpole.

The New England Highway Exposition, which is sponsored by the Massachusetts Highway Association and eleven other organizations concerned with road building, traffic control, street lighting and the advancement of safety on the highways, filled both armories and the outdoors area, and was the largest and most complete assemblage of equipment, machinery and materials ever seen in the history of New England.

INSTALL LIGHTING LAB

by G. W. Howie *(Assoc. Mem.)*

An outdoor street lighting laboratory which will demonstrate thirty or more different combinations of street lighting has been installed in Portland, Oregon, by the Portland General Electric Company.

The laboratory will be used as a means of testing and demonstrating such factors as lamp sizes, spacing luminaire types, mounting heights and illuminants.

One section of the laboratory is on an arterial street carrying moderately heavy traffic, while the other section is on a residential street carrying low volumes of local traffic.

Major equipment items in the laboratory include radial wave fixtures for 1000, 2500 and 6000 lumen lamps; open and enclosed suburban units; refractor units for 6000, 10,000 and 15,000 lumen lamps; upright ornamental luminaires; deflector fixture types for both incandescent and mercury vapor illuminants, and sodium vapor luminaires. Up to thirty practical combinations and arrangements of the various units can be demonstrated from a central control board.

TRAFFIC INSTITUTE CHANGE

Rex R. Andrews, chief of police of Highland Park, Ill., since 1940, has assumed his new duties as assistant director of training of the Northwestern University Traffic Institute, Evanston, Ill. Mr. Andrews replaces Leo J. Burrell, who resigned to enter private business. He will be an assistant to Arthur R. Forster, director of training.

The International Sign System

From the Treaty Series of the League of Nations.

The international system of road signaling shall comprise the classes of signs described below. When the colours to be used are optional it is understood that throughout each country they must always be the same for any one signal, save for an exceptional purpose.

I. DANGER SIGNS

Signs of this class must be triangular. Their purpose is to warn drivers of the approach of danger. They comprise:

(1) Signs established by the International Convention relating to Road Traffic of April 24th, 1926 (figures 1 to 5 and 7, Table I).

(2) A sign denoting other dangers than those referred to in paragraph 1 above. This sign consists of a full triangle with the point upwards, with a vertical bar in the middle (figure 6, Table I).

When a full sign cannot be used on account of atmospheric conditions, the triangle may be hollow. In this case, it need not have the vertical bar (figure 7, Table I).

The sign must be placed perpendicularly to the road at a distance of not less than 150 metres and not more than 250 metres from the obstacle, unless this is impossible on account of local conditions. When the distance between the sign and the obstacle is considerably less than 150 metres, special arrangements must be made.

(3) A sign for priority of passage (figure 8, Table I). This sign, consisting of a full triangle with the point downwards, informs the driver that he must give way to vehicles moving along the road to which he is coming. This sign must be placed at a suitable distance from the junction of the two roads to be decided by the special circumstances of each case.

Signs placed in the immediate vicinity of level crossings (St. Andrew's Cross, etc.) to which the provisions of the Convention do not refer, are not affected by the preceding provisions.

II. SIGNS GIVING DEFINITE INSTRUCTIONS

Signs of this class must be circular. They indicate an order, which may be either in the nature of a prohibition or of an injunction, issued by the competent authorities.

A. Signs Prohibiting Passage

For these signs, *the colour red must clearly predominate* and must be used so as to bring into relief the general contour of the sign. The other colours to be used are optional except in the following cases:

(a) *Road closed to all vehicles*: A red disc with a round white or pale yellow centre (figure 1, Table II).

(b) *One-way road* or *"entrance prohibited"*: A red disc with a white or pale yellow horizontal bar (figure 2, Table II).

(c) *Passage prohibited for certain classes of vehicles*: The sign (*a*) above is to be used but must indicate, by means of a suitable figure placed in the white or pale yellow centre, the class of vehicle to which prohibition refers (figures 3 to 5, Table II).

(d) *Weight-limit*: In order to prohibit the passage of vehicles exceeding a certain weight, a figure expressing the weight-limit in tons must be inscribed on the white or pale yellow centre of signs (*a*) or (*c*) above (figures 6 and 7, Table II).

(e) *Speed-limit*: In order to prohibit driving in excess of a certain

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Any way you look at it, Prismo is best. Sign is now continuously visible — day and night—from **any** angle.

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speed-limit, the figure expressing this limit in kilometres (miles) per hour must be inscribed on the white or pale yellow centre of sign (*a*) above (figure 8, Table II).

(f) *Waiting prohibited*: This sign shows that waiting is prohibited at the side of the public road where it is placed. The centre of the disc must be blue, surrounded by a wide red border with a diagonal red stroke (figure 9, Table II). It may bear inscriptions giving information as to the hours during which waiting is prohibited, etc.

(g) *Parking prohibited*: Red disc with circular centre in white or pale yellow bearing the letter P. with a diagonal red stroke (figure 10, Table II).

B. SIGNS INDICATING AN OBLIGATION

(h) *Direction to be followed*: This sign shows, by means of an arrow, the direction to be followed by vehicles in accordance with regulations (figure 11, Table II). The choice of colours is optional, provided that *red* shall never predominate. That colour should be entirely excluded if the ground of the disc is blue (in order to avoid any confusion with signal (*f*) above).

(i) *Stop near a Customs-house*: This sign indicates the presence of a Customs-house, in the vicinity, at which the traveller has to stop.

The sign is a red disc with round centre of white or pale yellow with a dark horizontal stroke. The word "Customs" must appear on the disc in the languages of the frontier countries or at any rate in the language of the country in which the sign is placed (figure 12, Table II).

III. SIGNS GIVING INDICATIONS ONLY

Signs of this category should be rectangular in shape. The choice of colours is optional, it being understood that the colour red should never predominate.

(a) *Signs indicating authorized parking-space*: This sign shows the place where vehicles may be parked. Rectangular plate, blue for choice, bearing the letter P. It may also have inscriptions giving further information such as the period during which parking is allowed (figure 1, Table III).

(b) *Signs recommending caution*: This sign shows that drivers of vehicles must take particular care by reason of the danger which may be caused to other users of the road (for instance when approaching a school, a factory, etc.)

The sign consists of a rectangle, the body of which is of a dark colour, on which is shown a white or pale yellow equilateral triangle (figure 2, Table III).

The purport of the sign may be shown by a notice in writing or a figure.

(c) *Sign showing place at which a first-aid station can be found*: This sign indicates that there is a first-aid station in the neighborhood, organized by an officially recognized association. *It is recommended* that it should consist of a rectangle, the shorter (horizontal) side of which should measure two-thirds of the longer side, the body of the plate being a dark colour, surrounded by a white stripe, and the centre of the plate bearing an appropriate emblem within a white square, the sides of which are not less than 0.30 metre in length (see, as an example, figures 3 and 3*bis*, Table III).

(d) *Place or direction signs*: These signs either indicate a place or else the direction of one or more places with or without specifying the distance. When they indicate direction, one of the shorter sides of the rectangle may be replaced by an arrowhead (see as an example figures 4 and 5, Table III).

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Tableau I — Table I

SIGNAUX DE DANGER
DANGER SIGNS.

1 CAHOTIS. UNEVEN ROAD. 2 VIRAGE. SHARP TURN. 3 CROISEMENT. CROSS-ROAD.

4 PASSAGE À NIVEAU GARDÉ. GUARDED LEVEL-CROSSING. 5 PASSAGE À NIVEAU NON GARDÉ. UNGUARDED LEVEL-CROSSING.

6 DANGER AUTRE QUE CEUX INDIQUÉS PAR LES SIGNAUX 1 - 5 DU PRÉSENT TABLEAU. DANGERS OTHER THAN THOSE INDICATED BY SIGNS 1 TO 5 OF THE PRESENT TABLE.

7 SIGNAL ALTERNATIF GÉNÉRAL DE DANGER DESTINÉ À ÊTRE EMPLOYÉ LORSQUE LES CONDITIONS ATMOSPHÉRIQUES NE PERMETTENT PAS L'EMPLOI DE PLAQUES PLEINES. ALTERNATIVE SIGN INDICATING DANGER TO BE EMPLOYED WHEN ATMOSPHERIC CONDITIONS DO NOT PERMIT OF THE USE OF A FULL SIGN.

8 SIGNAL CONCERNANT LA PRIORITÉ DE PASSAGE. SIGN CONCERNING RIGHT-OF-WAY.

Tableau II — Table II

SIGNAUX COMPORTANT DES PRESCRIPTIONS ABSOLUES.
SIGNS GIVING DEFINITE INSTRUCTIONS.

SIGNAUX MARQUANT UNE INTERDICTION.
SIGNS PROHIBITING PASSAGE.

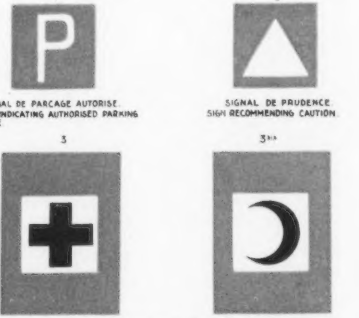
1 CIRCULATION INTERDITE À TOUS VÉHICULES. CLOSED TO ALL VEHICLES. 2 SENS INTERDIT OU ENTRÉE INTERDITE. ONE-WAY ROAD OR ENTRY PROHIBITED. 3 CIRCULATION INTERDITE AUX AUTOMOBILES. MOTOR VEHICLES PROHIBITED. 4 CIRCULATION INTERDITE AUX MOTOCYCLETTES. MOTOR CYCLES PROHIBITED. 5 INTERDIT POUR TOUS VÉHICULES AUTOMOBILES. ALL MOTOR VEHICLES PROHIBITED. 6 LIMITATION DU POIDS. WEIGHT LIMIT. 7 INTERDIT AUX AUTOMOBILES DONT LE POIDS DÉPASSE 5,5 t. MOTOR VEHICLES WEIGHING OVER FIVE AND A HALF TONS PROHIBITED. 8 VITESSE MAXIMUM. MAXIMUM SPEED. 9 INTERDICTION DE STATIONNER. WAITING PROHIBITED.

SIGNAUX MARQUANT UNE OBLIGATION À EXÉCUTER.
SIGNS INDICATING AN OBLIGATION.

10 INTERDICTION DE PARQUER. PARKING PROHIBITED. 11 SENS OBLIGATOIRE. DIRECTION TO BE FOLLOWED. 12 ARRÊT À PROXIMITÉ D'UN POSTE DE DOUANE. STOP NEAR CUSTOMS HOUSE.

Tableau III — Table III

SIGNAUX COMPORTANT UNE SIMPLE INDICATION.
SIGNS GIVING ONLY ONE INDICATION.



1 SIGNAL DE PARCAGE AUTORISÉ. SIGN INDICATING AUTHORISED PARKING PLACE. 2 SIGNAL DE PRUDENCE. SIGN RECOMMENDING CAUTION. 3 SIGNAUX INDIQUANT L'EMPLACEMENT D'UN POSTE DE SECOURS (à titre d'exemple). SIGNS SHOWING PLACE AT WHICH A FIRST-AID STATION CAN BE FOUND. (as an example) 4 5 SIGNAUX DE LOCALITÉ ET D'ORIENTATION. PLACE SIGN AND DIRECTION SIGN.

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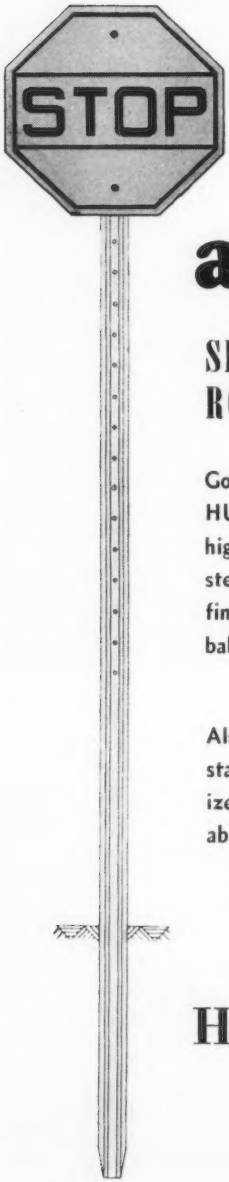

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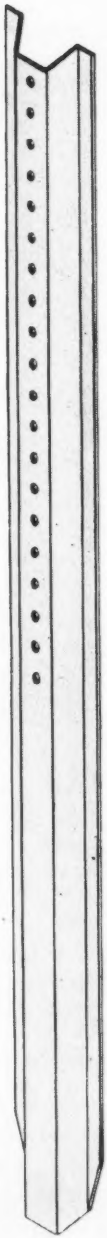

OFFICIALS DISCUSS PARKING

Will Rogers said many years ago, "The question is not will Coolidge be elected or will we join the League of Nations, but where will I park my car?" With this ancient but honorable reference to the parking problem, President Wesley B. Foss opened a two day conference on the parking problem conducted by the New England Association of Commercial Executives at the Eagle Hotel in Concord, New Hampshire, October 18 and 19, 1947.

Speakers included two members of the *Institute of Traffic Engineers*. Charles M. Upham, Jr., Traffic Engineer, Hartford, Connecticut, Chamber of Commerce, presented a paper "Anaylzing For a Parking Solution". Sample field study forms were distributed and Mr. Upham discussed the studies necessary to determine urban parking demands and characteristics.

The economics of parking were discussed by Charles S. LeCraw, Jr., Traffic Engineer, Eno Foundation. Methods of financing parking facilities were discussed and an equitable means of distributing costs of providing parking between land owners, vehicle operators and the municipality were opened to discussion.

About fifty executives of Chambers of Commerce from cities and towns in six New England states were present. At least one man present was serving in the dual capacity of traffic expert and Chamber of Commerce representative. This was John Wilkins, President of the Automatic Signal Division, Eastern Industries, Inc. and also President of the Norwalk, Connecticut, Chamber of Commerce.

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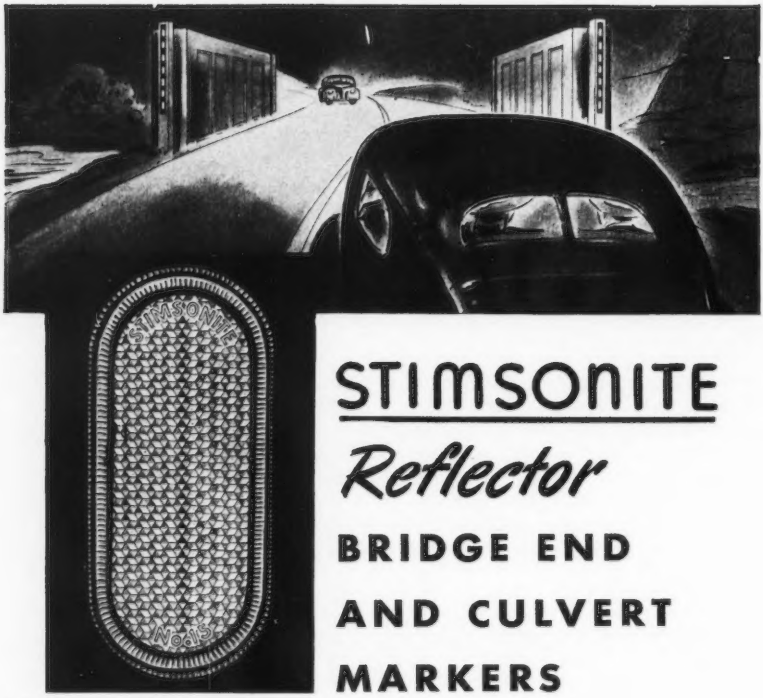

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Stocked in two standard lengths:
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REFERENCE NOTES

Discussion of an appropriate name for the form of transportation involving the use of trucks, buses, and passenger cars on highways, roads, or streets:

Each form of transportation involves many supervisory and technically different activities such as are required for general supervision, planning, design and procurement, physical operation, maintenance, communications, traffic control; design, construction and maintenance of necessary facilities such as terminals, roads, rails, etc. No form of transportation can operate with any degree of efficiency without the services of these many technical skills.

In the efficient utilization of the various forms of transportation there are few situations where any one form will operate independently of one or more of the others.

The general War Department definition of *Motor Transport:* "motor vehicles used for transporting military personnel, weapons, equipment, and supplies, excluding essentially combat vehicles such as tanks, scout cars, and armored cars", does not incorporate the technical services necessary to provide a transportation service, but confines itself to the vehicle used. Other definitions confine the scope to allocation of the empty vehicle to someone else and their maintenance as necessary. In other publications the term motor has been used in connection with both rail and water transport.

The dictionary definition of motor does not indicate a particular form of transport but rather the power unit for any form of transport. Thus, the means by which mobility is provided for the various forms of transport is basically similar and in many cases the same so far as the motor or power plant is concerned.

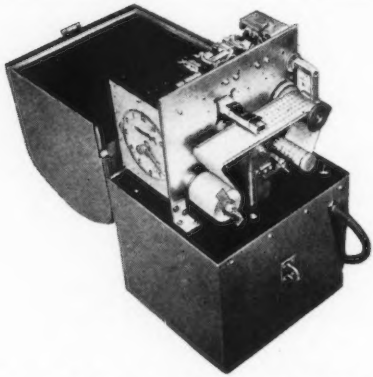
The dictionary definition of highway is "A main road or thoroughfare; hence, a road or way open to the use of the public". Synonyms given are road, street, track, or path.

The great and distinct differences in the various forms of transport are in the conveyances and the obvious place where the conveyance is operated, i.e. airplane and air; boats or ships and water; railroad trains and railway or railroad tracks; trucks, buses, passenger cars, or horse drawn vehicles and highways, roads, or streets.

The greatest development of the form of transportation which utilizes trucks, buses, and passenger cars on highways, roads, and streets has been in the United States. Privately owned companies which own and operate such vehicles use a varied combination of names. The names chosen follow no specific pattern, and obviously are but few chosen to convey the kind of service.

The activities of the various truck and bus companies in the United States are confined to supervision, physical operation and maintenance within laws and regulations they do not establish. Other agencies furnish engineers who design the trucks and give technical assistance in operation and maintenance, do all highway engineering including traffic engineering, provide communications, handle gasoline distribution, etc. The highway and street facilities are such in the United States that there is no need for convoy and movement control activities of the kind needed in most of the Army highway operations.

In selection of a name to indicate the form of transportation, and in general the conveyance, and also incorporate the technical services essential to its operation, it is not believed wise to use terms which are common to other major forms of transport or



STATE ENGINEERS PLAN FUTURE ROADS WITH

Traficounter

State highway engineers, the original users of Traficounters, have this to say about the value of these precision built instruments in their highway planning.

1. "Our portable traffic recorders are used periodically for traffic counts on urban streets and for determining changes in traffic at scattered points on our rural highways.

2. "Mechanical counting equipment supplies most of the traffic information gathered."

3. "In every case (of planning for new roads and improvement of old roads) the value of traffic plays a very important part in determining the extent of such work and mechanical counting equipment has been found to be essential in economically gathering such data."

The Traficounter is twice as fast as any other counter of motor traffic; essentially an electric counter which records the over-lapping cars as they cross the dectector. It assures accuracy, is on the job 24 hours a day, and will save many man hours. **Streeter-Amet Company**, 1726 Belle Plaine Avenue, Chicago 13, Illinois.

STREETER-AMET

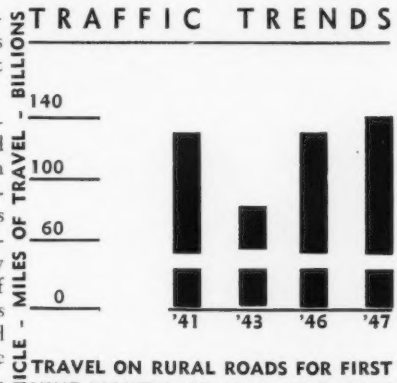
which according to any War Department definition is limited or implies limitation of activities to but a part of the essential components.

In the design of a Table of Organization for coordination, direction and operational control of a common carrier trucking service, need for including specialists in such fields as army administration, truck fleet operation, vehicle maintenance, highway engineering from the standpoint of determining capabilities of highways to support proposed loads and required additional facilities for carrying the required highway transport load, highway traffic engineering from the standpoint of movement control, providing essential traffic control and directional signs, communications, enforcement, procurement, storage and issue, and training were considered essential to efficient operation and incorporated in the organization.

To indicate the form of transportation, the kind of conveyance and inclusion of technical subdivisions which when coordinated and operated under one supervisory organization provide a transportation service the rail people selected the names Military Railway Service, and Railway Grand Division.

To indicate the form of transportation and in general the kind of conveyance, and also inclusion of technical services which when coordinated under one supervisory organization provide a theater common carrier service involving the use of trucks, and in some cases buses, passenger cars or horsedrawn vehicles on highways, roads, or streets, the terms Highway Transport Service and Highway Transport Division are believed to be most logical.

[Based on information furnished by D. K. Chacey.]



TRAVEL ON RURAL ROADS FOR FIRST NINE MONTHS OF 1941, 1943, 1946 AND 1947.

[Based on Public Roads Administration Data]

REPLACE TROLLEYS

The Winnipeg Electric Company has announced that since 1938 buses and street cars on seven lines in this city have been replaced by electric trackless trolleys.

The latest conversion to trackless trolley operation took place during October on the McGregor Street route, a line which was originally served by street cars and later by buses.

Motor buses also ceased to serve Ellice Avenue in July, the company said, as the electrically-powered coach was put into use instead.

At the start of 1947 Winnipeg Electric had 30 trolley coaches. Now the company has 74 of these new vehicles in operation.

Conversion from older vehicles to trackless trolleys is expected to "progress steadily", a Winnipeg Electric official stated.

Reserve your copy
1947 PROCEEDINGS
INSTITUTE OF
TRAFFIC ENGINEERS
Strathcona Hall
New Haven, Connecticut

110 EAGLE SIGNAL 3 DIAL CONTROLLERS TO BE INSTALLED IN THE HEART OF DOWN TOWN LOS ANGELES

• • • • for today and tomorrow

Los Angeles has actually ordered the equivalent of 3 separate controllers for each intersection. Their controllers will accomplish TRIPLE OFFSET ON EACH DIAL, give them THREE PERCENTAGE SPLITS AT EACH INTERSECTION and TOTAL TIME CYCLE ON EACH DIAL.

When you purchase the Eagle Multidial, you're getting a controller that will handle any traffic situation at any time — and live long enough to do it!

EAGLE OFFERS YOU COMPLETE UNIT CONSTRUCTION

THIS MEANS — All cycle units are independent of one another. Each unit contains its own gear change unit, its own dial, its own impulse contacts and its own EAGLE DISK TYPE SYNCHRONOUS MOTOR.

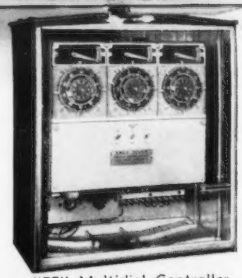
With one cycle unit remaining in the controller, the other two may be removed for servicing without tools or manipulation of wires. The intersection remains under adequate signal supervision. With separate unit flasher, the entire controller mechanism may be removed and the intersection still remains under the supervision of flashing lights.

EAGLE Multidial Controllers may be ordered with one, two or three dials — WITH THE FUTURE IN MIND. Complete cycle units and relays may be added at any time, changing the controller to two or three dials at will. Whatever the change in traffic flow at the applied intersection may grow to be, the Eagle Multidial will always be there to adequately control it.

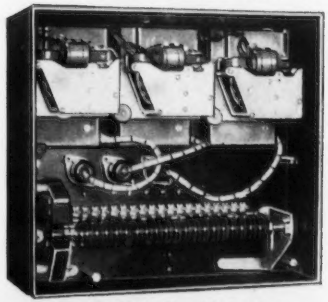
We have designed this controller for your benefit. The choice of dials when ordering, the convenience in maintenance and the flexibility of the controller will pay you big dividends.

Plan for future growth

Build your next program around the Eagle EF Multidial Controller. Get in contact with your nearest Eagle Signal Sales Representative or write - - - -



"EF" Multidial Controller



"EF" Controller Mechanism

EAGLE *Signal Corporation*

SAFEGUARDING TRAFFIC FOR OVER 20 YEARS

MOLINE - ILLINOIS

Here's *the answer* to your off-street parking problem

PARK-N-LOT*

THIS NEW 10-HOUR MODEL OF PARK-O-METER WILL FINANCE MUNICIPAL PARKING LOTS AND SOLVE EVERY OFF-STREET PARKING PROBLEM

*

Automatic Park-N-Lot* Meters, embodying the same time-proved mechanism employed in the famous Park-O-Meters, provide a permanent solution to all off-street parking problems. They pay for themselves quickly; pay for the parking facilities; then continue to bring in revenue.

Fully variable to meet every coin and time combination that may be required.

TYPICAL OPERATING PLAN

FRINGE AREA	BUSY AREA
2 hours, 1 nickel	1 hour, 1 nickel
4 hours, 2 nickels	2 hours, 2 nickels
6 hours, 3 nickels	3 hours, 3 nickels
8 hours, 4 nickels	So on through 10 hours
10 hours, 5 nickels	5 hours, 1 quarter
10 hours, 1 quarter	10 hours, 2 quarters

* REGISTERED TRADE MARK U.S. PAT. OFF.

Deliveries Now Being Made
ASK FOR DETAILS AND DEMONSTRATION

Magee-Hale **PARK-O-METER COMPANY**

COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

(Macnick Company, Manufacturers, Tulsa, Oklahoma)

Activities . . . .

In retiring as President of the *Institute of Traffic Engineers*, may I express my appreciation to the membership for the opportunity given me to hold this honor for the past two years.

I particularly wish to thank the members of the Board of Direction and the Headquarters staff for the time and energy devoted to the various committees and the membership of those committees for actually carrying on the work of the INSTITUTE.

It has been a real pleasure to serve with such an energetic gang.

TOM SEBURN

YEARBOOK CHANGES

Thomas P. Walbert, 23 Second Avenue, N. E., Atlanta 6, Georgia.
James E. Reading, 268 Civic Center, San Diego 1, California.
Major Phillip E. Taylor, 237 Lynhaven Drive, Alexandria, Virginia.
Fred W. Fisch, Director, New York State Dept. of Public Works, Bureau of Arterial Route Planning, 353 Broadway, Albany 1, New York.
Donald S. Macdonald, Foreign Service Institute, U. S. Department of State, Washington 25, D. C.
A. E. Forsyth, Transport Department, P. O. Box 10, Te Aro, Wellington, New Zealand.
Donald W. Loutzenheiser, Chief, Design Development Section, Department of Design, U. S. Public Roads Administration, Washington 25, D. C.
Frank C. Eisenach, Worthmore Road, RR 1, Box 30, Lansing, Michigan.
Maurice O. Eldridge, 1789 Lamer Place, Apt. 31, Washington 9, D. C.
William H. Voltz, Department of Vehicles and Traffic, East Administration Building, 301 C Street, N. W., Washington, D. C.
James S. Saylor, Senior Engineer, Department of Traffic Control, City Hall, Dallas, Texas.

SECRETARY'S COLUMN

The beginning of the 18th fiscal year of the *Institute* marks an important new phase in Committee structure and activity. The 1947-48 Yearbook, expected off the press on or about the first of January will reveal a reorganization of Committees into *three* major divisions, each under the direct supervision of an officer of the *Institute*. The newly-formed Technical Division, which will include all committees concerned with research, development and standardization (e.g., Traffic Signals, Signs and Markings, Parking, Research, Street and Highway Lighting, etc.) will be headed by Vice-President Harry E. Neal, as General Chairman.

At this point I would like to explain that the old Standards and Specification Committee has been discontinued and has been replaced by five new committees (formerly sub-committees —see Vol. XVII, No. 6, Pg. 284, March, 1947) dealing with certain phases of the traffic engineering profession. This division broadens the scope of activity for each of the new committees and allows simultaneous progress on several important projects, heretofore limited to the volume of work that could be effectively handled by only one committee. The change was approved by the Board of Directors at the special request of the former chairman and sub-committee chairmen of the Standards and Specifications Committee.

The new Administrative Division,

A plus value for every city

. . that installs DUAL Automatic Parking Meters

DUALS are built like fine time-pieces—skillfully designed, engineered . . . made with finest-quality materials and workmanship. This makes Duals accurate, dependable, weather-proof, tamper-proof. But, like any fine time-piece, occasional cleaning and servicing are necessary.

Dual's Plus Value

Dual believes that *service after installation* is as important as selling the meter. Hence, Dual maintains a complete Service Department, staffed by specialists to give factory attention to any Dual that needs it. And—Dual factory-trains cities' own personnel, supplies handy service manuals, sends field servicemen on regular inspections.

No wonder Duals are preferred by so many cities . . . they're an investment in *quality* and *service*. And long after Duals have paid for themselves, they provide steady income that can be used to help solve other traffic control problems. For an engineering study of your needs, write—

THE DUAL PARKING METER CO.

A Subsidiary of The Union Metal Manufacturing Company

Milford Building • Canton 2, Ohio

Partial view of Dual's well organized Service Department.

WHEN IT COMES TO CONTROLLING PARKING

YOU CAN DO IT BETTER WITH DUALS

which includes all committees concerned with the administration and operation of *Institute* affairs (e.g., Nominating, Policy, Finance, Membership, etc.) will be headed by Vice-President Wilbur S. Smith. The Co-operative Activities Division, which includes all joint activity with other national organizations will be steered by Secretary-Treasurer Fred W. Hurd. The President, as stated in the Constitution and By-Laws, is ex-officio chairman of all ITE committees, and, in addition will personally supervise the activities of several short term special committees. Many of last year's committee chairmen will be retained by special request in order to carry on new projects begun last year to final completion. Several new chairmen have been selected by the President and have indicated a willingness to serve. Formation of committees will be complete when this column goes to press. The work of the committees during the coming year will determine the extent of *Institute* progress and achievement to be reported at our next Annual Meeting. Such progress can only be made through wholehearted support of committee chairmen by the committee members, and support of committees through helpful and constructive suggestions by the entire membership.—ROBERT S. HOLMES.

I T E PERSONALS

The October 4th Toledo Blade devoted a full column to Traffic Engineer, **PAUL ROBINETTE**, saying in part:

"Many a local institution has its full quota of yes-men, but Toledo's City Hall has the one-and-only triple-negative no-man.

"He is Paul Robinette, city traffic engineer —probably the only public official in local history who has a standing resignation on file in the City Manager's office.

"Mr. Robinette's resignation letter says, in effect, that he leaves office pronto on the day when he is required to substitute political expediency for traffic engineering.

"It was written last April 1 during a scribble-squabble over a traffic light which a Council member and several hundred constituents wanted at Dorr Street and City Park Avenue.

"Since then and before, Mr. Robinette has said no to councilmen, to pressure blocs, Parent-Teacher groups, downtown business men, millionaires, paupers and politicians, most of whom thought they were traffic engineers. He once shouted no to a two-star general with similar delusions while serving as a civilian expert for the Delta Base Command near Marseilles, France, during the late war.

"Way back in 1937-38 Mr. Robinette (and an outside engineering survey) said Toledo's downtown traffic problem could be solved, for the most part, by a one-way street system.

"Whammo! The exploding wrath of merchants and downtown business men rocked City Hall for the next nine years. Every time the one-way street subject came up for discussion it evoked a whooping, howling gallery which included, incidentally many a member of the Chamber of Commerce.

"Finally, early last year, a Chamber group itself came in to the Council and said—"Do something – do anything, but do something about downtown traffic." With narry a grin, P. R. slipped in a six-months trial of his one-way street dream. It worked, and it's still working, on a permanent basis now."

HENRY EVANS (Mem. ITE) has accepted a position with De Leuw Cather Consulting Engineers, and has taken up his new duties in San Francisco, Calif. Mr. Evans resigned as Director of Traffic Engineering, National Conservation Bureau, New York City.

The August 2, 1947 issue of **Barlow's Weekly**, published in Johannesburg, South Africa, contains the following about an **Institute** member:

"Seeing Chief Traffic Officer, **BRIGADIER A. A. HAYTON**, mooching around the Johannesburg Traffic Department the other morning, I put him right into that irritating class of people who make you work yourself into a frenzy thinking of statistics about them.

"Its the way when, over breakfast, you find that Mr. Molotov has once again said, "No," you feel compelled to work out how many times he has said it in the last two years.

"In the Brigadier's case you wonder how many people (motorists to be precise) curse him with feeling daily. A hundred? Two hundred? A thousand;

"The Brigadier doesn't seem to mind, bless him.

"When I saw him he was smiling. Then I heard that traffic fines were to be increased."

WILBERT F. WATKINS was fortunate enough to have a representative of the Louisville Courier Journal with him at the Detroit meeting to write a complete story for his paper in the interest of traffic engineering for the City of Louisville.

FRED W. FISCH has been appointed Director of the City Arterial Route Planning Bureau, Department of Public Works, New York State.

CHARLES UPHAM, JR. has joined with Les Williams as Consultant Traffic Engineers.

JULIEN H. HARVEY has been ill for some time and the Directorship of the National Conservation Bureau is being carried on by Thomas N. Boate, Director, Special Services Division.

PROFESSOR C. C. WILEY is sponsoring the organization of another Student Chapter of the Institute at the University of Illinois. He is also formulating plans for a traffic engineering conference at the University to be sponsored jointly with the highway department.

How much is a LIFE worth?

That's what you can SAVE by installing

CROUSE-HINDS NEON Pedestrian Signals

At long last . . . . a signal that really curbs the **reckless pedestrian!**

He is one of the major causes of death and injury . . . . the reckless pedestrian who ignores the conventional traffic signal which he considers for vehicles only. His attention is arrested by the distinctive shape and brilliant lettering in Crouse-Hinds NEON Pedestrian Signals, the signals that deliver their message directly to HIM. He just naturally obeys their positive command.

Needed at all extra-busy corners, these signals are invaluable at complicated intersections, especially where it is hazardous for pedestrian and vehicular traffic to move at the same time in the same direction. Install them in the direct line of pedestrian vision at one of your "problem" intersections and note the outstanding improvement in pedestrian control.

These NEON signals are ideal for use as vehicle information signs, such as ROUTE 20⟶ , ONE WAY⟶ and NO LEFT TURN. Their striking appearance catches the eye of the motorist in locations where ordinary signs would be "lost" in distracting surroundings.

The weatherproof Crouse-Hinds NEON Pedestrian Signals and Traffic Signs are cast aluminum, built to withstand heavy duty. The letters are all red or a red and green combination. 4-1/2" high. Available in one-line and two-line types, these signals can be mounted like a conventional traffic signal, on top of a post, on bracket arms, on a span wire, or on a mast arm.

Write for full details. Ask for descriptive circular, Type TNO. It contains catalog listings of the 14 variations that are regularly furnished.

A Nationwide Distribution Through Electrical Wholesalers

Crouse-Hinds Catalog 226 lists a complete line of traffic signals, beacons, flashers, and a series of controllers designed to help you solve your traffic control problems ... from simple installations up to the most complex heavy traffic problem. Send for your copy.

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CONDULETS
FLOODLIGHTS
TRAFFIC SIGNALS
AIRPORT LIGHTING

ELECT NEW MEMBERS

At a Board of Direction meeting in Detroit, the following were elected:

NEW MEMBERS

Douglas A. Bowers, Traffic Engineer, Oklahoma Railway Co., Box 995, Oklahoma City 3, Oklahoma; M. Earl Campbell, Engineer of Traffic and Operations, Highway Research Board, 2101 Constitution Avenue, Washington 25, D. C.; Walter M. Parker, Sr., Division Engineer, Division of Research and Records, Florida State Road Department, Tallahassee, Florida; Harley L. Swift, President and General Manager, Harrisburg Railway Co., 12 South Second Street, Harrisburg, Pa.

ASSOCIATE MEMBERS

W. Norman Kennedy, Assistant Traffic Engineer, Transportation Building, Olympia, Washington; Emrys E. Lewarch, Assistant Engineer, Traffic, 400 County-City Building, Seattle 4, Washington.

JUNIOR MEMBERS

George E. Cogger, Junior Engineer, Department of Traffic Control, City of Dallas, Dallas 1, Texas; David F. Dabney, Assistant Traffic Engineer, Division of Traffic Engineering, Department of Public Safety, New Orleans, Louisiana; Jerome D. Franklin, Division of Traffic Control and Regulation, State House, Trenton 7, New Jersey; Glen D. Heggie, Assistant Signal Engineer, Traffic Engineering Bureau, 429 Wayne Street, Detroit 26, Michigan; Richard I. Strickland, Office Engineer, Ann Arbor City Planning Comm., Ann Arbor, Mich.

TRANSFERS—ASSOCIATE TO MEMBER

Henry K. Evans, Robert N. Grunow.

TRANSFER—JUNIOR TO MEMBER

Charles M. Upham, Jr.

NEW AFFILIATE

Col. Robert C. F. Goetz, President, The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

LIST RESOLUTIONS OF DETROIT MEETING

Resolutions approved and adopted by the *Institute* at the Detroit annual meeting were:

"WHEREAS, traffic volumes following V-J Day rebounded to prewar levels sooner than was anticipated and are increasing as rapidly as automotive production will permit, and

"WHEREAS, the streets and highways were already overburdened prior to the war, and

"WHEREAS, by reason of the uncertain economic conditions construction of planned highway facilities have been lagging, and

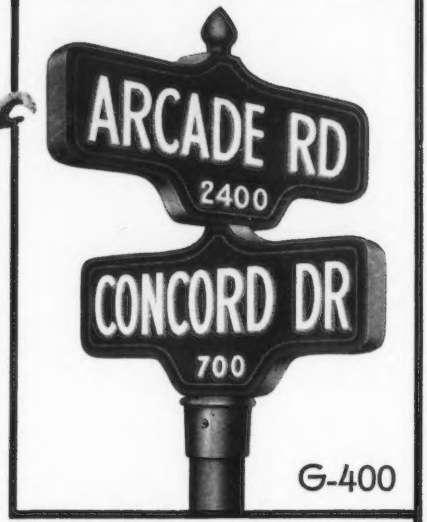
"WHEREAS, the traffic engineers will be forced to continue to make the best use of existing facilities;

"NOW BE IT RESOLVED, that the members of the *Institute of Traffic Engineers* who constitute a body of public servants in the employ of the cities, states and the Federal government, as well as of the many civic and other interests devoted to the improvement of traffic and transportation do hereby pledge themselves in the coming year, the 18th fiscal year of the *Institute*, to dedicate themselves to the following important duties to be carried out in their several respective communities.

"1. By constantly improving traffic control including well designed and properly applied signals, signs and markings, by the introduction and maintenance of one-way streets wherever practicable, by the judicious use of traffic channelization and by the vigorous application of time tested traffic engineering techniques developed by the profession, thereby to utilize the streets and highways to a maximum.

"2. To work diligently to the end that the public can use the streets and highways with a maximum of safety and a minimum of annoyances and irritations.

THAT'S THE STREET SIGN FOR US MR. SUPERINTENDENT IT'S BEAUTIFUL BUT VERY PRACTICAL TOO !



- 45 years of successful manufacturing of signs have made GROTE products nationally accepted for all traffic control problems.

- SIGNS
- SIGNALS
- STREET NAME PLATES
- FIREBALL REFLECTOR BUTTONS
- GROTELITE REFLECTOR LENSES
- RAILROAD SIGNALS

Write, wire or call for your Catalogs today

FREE Pocket guide for successful safety campaigns

Prompt Deliveries

- DURABLE
- GRACEFUL
- DIGNIFIED
- PRACTICAL

The Grote Mfg. Co. Inc.

SIGNS · SIGNALS · STREET NAME PLATES

BELLEVUE, KY. • • OPPOSITE CINCINNATI, OHIO

GROTE

"3. To provide technical guidance and stimulation to municipalities, civic organizations and the business communities in the combined attack on the problem of developing adequate terminal facilities.

"4. To furnish the press and radios of these communities the facts and information concerning the traffic problems and their solution so that these public information agencies can properly interpret them to the public and so these traffic improvement programs will result in the end product—the safety and convenience of the traveling public."

Other resolutions presented by the *Institute* included special appreciation to the Automobile Manufacturers Association, the Traffic Safety Association of Detroit, the Automobile Club of Michigan, and the Michigan Section of the *Institute* who were responsible for arrangements pertaining to the conduct of the program at the Annual Meeting and the special features.

SECTION NEWS

MIDWEST SECTION

On September 25, the Midwest Section held an evening meeting at which time an address was given by Robert Diefenthaler of the General Electric Company. The subject was "Correlation of Street Lighting and Street Tree Management." Those attending the meeting were as follows: W. R. Abbott, J. S. Baker, Donald Berry, Richard Fencl, Ralph Gross, Victor Hofer, Matthew Krag, William Marston, Ralph Michel, Harold Moore, Russell Newell, Peter Page, and Matt Sielski.

MICHIGAN SECTION

The Michigan Section, ITE, held its final outing of the 1947 summer season on September 10. The group met at Indian Hills Golf Club, Lansing, for an afternoon and evening of golf, soft ball, Michigan buck-up, and a very short business meeting. A grand time was had by the fifty members and guests on hand.

Ralph Shoemaker of the Michigan State Highway Department and Don Crosier of Scotchlite were co-chairmen of the event. Members of the ITE present were: Sid Anger, Harold Bauerle, Jerry Buckley, Don Cruise, Barney Syberski, Jim Doyle, Ross Harger, Russ Harrison, Carl McMonagle, Frank Ronan, Al Sherman, Ed Shulman, and Gerry Shuttleworth.

RESOLVED that those members in attendance at the 18th Annual Meeting, and in behalf of those who were unable to be with us, extend to our outgoing President, Tom Seburn, our sincerest appreciation for his wise and vigorous leadership of the Institute of Traffic Engineers for the past two peace-time years following World War II, during which period it has become an increasingly recognized influence in traffic and transportation matters of the Nation; and we shall continue to look to him for his able counsel in the future affairs of the INSTITUTE.

ON THE SHELF

A report on the parking problem in the central business district of Fort Worth, Texas, titled "Fort Worth Parking Study, 1947", was presented to City Manager Mr. W. O. Jones, this month, by Parsons, Brinckerhoff, Hogan, and MacDonald, consulting engineering firm, 142 Maiden Lane, New York City. The completion of the survey and the presentation of the report was announced by Mr. Lawrence S. Waterbury (Mem. ITE), partner in the firm. Mr. Frederick J. Sawyer was project engineer.

The report cited a need within the next 5 years for 1,000 additional off-street spaces in the area included by a 28-block "core" and a two-block strip around the core, called the "adjacent ring". The presentation of the findings of the survey and the recommendations for new space were based on a separate analysis of the area included in the "core and adjacent ring" and the area of the central business district outside this shortage area. The "core" area was that section of the central business district which had the "greatest concentration of destinations".

The reports stressed the fact that increased enforcement of curb parking regulations was more important than new facilities in alleviating the present parking problem. Fort Worth's downtown street system provides an unusual amount of legal curb spaces; the report estimated 35,300 curb parkers in the 10-hour business day.

BELLEVUE, KY. • • OPPOSITE CINCINNATI, OHIO

ELECTRO-MATIC

SPEED METER, MODEL S-1

- Model S-1 Speed Meter is a precision instrument for measuring speeds of vehicles on streets or highways. No tubing, detectors, or wires required on road.
- A microwave radio frequency radiation is beamed at advancing or receding vehicles, and their true instantaneous speeds are read directly in miles per hour on a linear scale meter.
- A graphic recorder can be furnished for providing a permanent record.

Write for Bulletin 472 and further details.

AUTOMATIC SIGNAL DIVISION

EASTERN INDUSTRIES, INCORPORATED

NORWALK, CONN. CHICAGO, ILL.

There were 11,800 parkers in lots and garages.

Highlighting the recommendations were specifications that (1) the new off-street spaces be acquired by double-decking existing well-located lots (2) financing and operating the new facilities should be by private enterprise with municipal assistance only if necessary, (3) employee parking lots be developed on the outer fringe of the adjacent ring, (4) all-day parking in lots and garages in the core be discouraged by a rate revision program coordinated by a parking committee of the local chamber of commerce, and (5) that zoning ordinances be revised to require future construction to provide parking and loading space.

Other recommendations included in the report were the creation of a Traffic Engineering Department and changes in traffic signal timing, and in transit operation. (J.A.C.)

A "Manual of Transit and Traffic Studies" has been prepared under the sponsorship of the Operations Division of the American Transit Association to provide transit companies and traffic engineers with the necessary material on which to base studies leading toward a solution of present and future problems of urban transportation and traffic movement in metropolitan areas.

Copies of the Manual may be purchased from the American Transit Association, 292 Madison Avenue, New York 17, N. Y., at a price of $2.00 each for members of the Association and $3.00 each for non-members.

Statement of ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946, of Traffic Engineering, published monthly at Plainfield, New Jersey, for October 1, 1947.

State of New Jersey } ss.
County of Union }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Robert O. Swain, who, having been duly sworn according to law, deposes and says that he is the Editor of the Traffic Engineering and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semiweekly or triweekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—Institute of Traffic Engineers, 400 Watchung Avenue, Plainfield, N. J.

Editor—Robert O. Swain, 2312 North Vernon, Arlington, Va.

Managing Editor—LeVerne Johnson, c/o Am. Auto. Ass'n., 17th Street, Washington, D. C.

Business Manager—Russell Harrison, 429 Wayne Street, Detroit 26, Michigan.

2. That the owner is: (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Institute of Traffic Engineers, 212 Strathcona Hall, New Haven 11, Conn.

President—Thomas J. Seburn, City Hall, Kansas City 6, Mo.

Vice-President—Robert A. Mitchell, 790 City Hall, Philadelphia, Pa.

Secretary-Treasurer—Wilbur S. Smith, 311 Strathcona Hall, New Haven 11, Conn.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is .....
(This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

ROBERT O. SWAIN,
Editor.

Sworn to and subscribed before me this 15th day of September, 1947.

[Seal] CHARLOTTE C. MATZEN
Notary Public of New Jersey
(My commission expires June 24, 1951)

MUNICIPAL OFFICIALS

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POLICE
EVIDENCE
ON AMERICA'S
FATAL STREETS
SOURCES
ORGANIZATIONS:
Illuminating Engineering Society; Metropolitan Life Insurance Company; National Bureau of Casualty and Surety Underwriters; National Safety Council; International Municipal Signal Association.
STATES:
California, Connecticut, Illinois, Michigan, New Jersey, New York, Utah, Pennsylvania.
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"Evidence on America's Fatal Streets"

TELLS YOU

What causes most night traffic accidents and how they can be prevented.

How other towns and cities have reduced crime, increased local business, added to the value of real estate.

GIVES YOU

Actual case histories from communities all over the country on how modern street lighting has paid for itself many times over in measurable benefits.

The results of local and national traffic accident and fatality surveys.

Ideas on how to improve traffic and public safety conditions in your town.

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The Street & Traffic Safety Lighting Bureau
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Personalities . . . .

This is the sixth in a series of articles about Institute Members.

'Way back in the middle twenties Bill Brandes developed an affinity for traffic signals having witnessed the first of such installations in the City of Jacksonville, Florida, while residing there. A few years later he became involved in the intricacies of timing diagrams while employed by the Chicago Surface Lines. In 1931 Bill became associated with Les Sorenson taking charge, among other duties, of all traffic signal operations for the City of Chicago in which capacity he served until 1943. During that period approximately 400 intersections were newly signalized, many of them of complex nature involving intricate and ingenious timing schemes. Operating on the basic theory that signals should move rather than stop traffic Brandes finished his Chicago tenure with 65 per cent of all signalized intersections operating in variously prescribed time relationships.

Perhaps the hardest job Bill ever tackled was that of coordinating three jurisdictional agencies to secure the then most flexible progressive system of signals, on Chicago's famous "Boul. Mich." Writing equipment specifications, timing triple dial controllers and numerous other problems culminated finally when the complete system was

(See BRANDES *on page 95)*

John B. Ecker, Director of Research and Planning for the Capital Transit Company of Washington, D. C., known as "Jack" to his many friends, is a young man in years but an old timer in the transit industry.

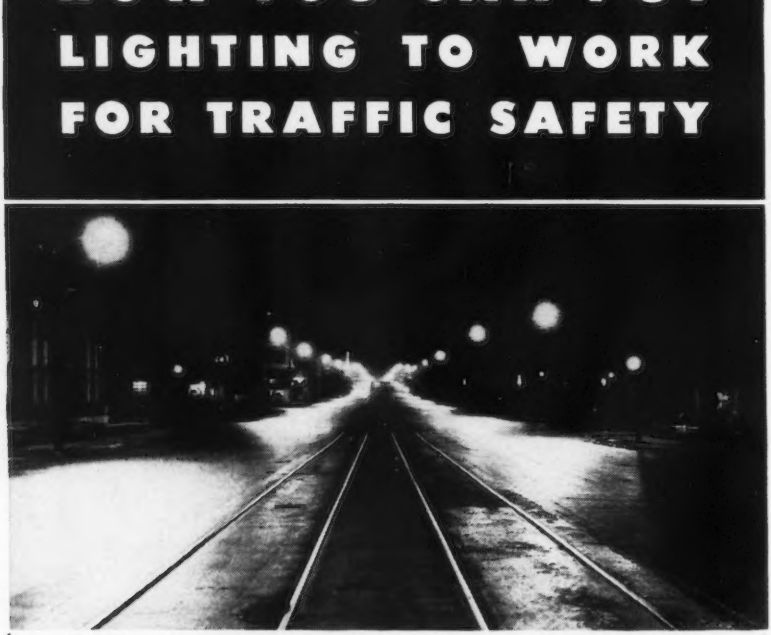
Jack is one of the comparatively few Washingtonians native to the capital city. He was educated at the University of Virginia, Washington and Lee University, Harvard University, National University and George Washington University, with both a Bachelor of Science degree in Civil Engineering and an M.S. degree. His one year at George Washington was in the law school.

Like many another young engineer, Mr. Ecker got his start as a rodman and with the Louisville Railway, later "graduating" to chainman with the Baltimore and Ohio Railroad. He was first employed by the Capital Traction Company, a predecessor of the Capital Transit Company, in 1929 as an assistant engineer of ways and structures.

From this first job involving track supervision and maintenance, design of buildings and transmission and distribution systems, and field layout work, Jack has advanced steadily through principal assistant engineer, and re-

(See ECKER *on page 95)*

HOW YOU CAN PUT LIGHTING TO WORK FOR TRAFFIC SAFETY



With 5 per cent of the streets accounting for 85 per cent of night accidents, Kansas City, Mo., had an obvious starting point for a relighting problem. This is 15th Street after relighting.

When Mr. T. J. Seburn, Traffic Engineer of Kansas City, Mo., took over the task of modernizing the city's street lighting one of his first steps was to study night-accident records. His findings: 85 per cent of all night accidents occur on 40 of the city's 750 miles of streets.

These 40 miles were given top priority in an over-all lighting program. The whole program will quadruple average lumens per foot, cut cost per effective lumen from 4¾¢ to 1½¢.

By improving first the light on the most dangerous five per cent of streets, Kansas City expects to increase safety at night better than 50 per cent immediately.

What You Can Do

You can solve night-safety problems to a large extent with light. Put it to work first where accidents from low visibility prove it's needed most.

General Electric has had broad experience in aiding traffic engineers with lighting problems. For better safety at night, let a G-E lighting specialist help you put the right light to work in the best place. Just call your nearest apparatus office or write *General Electric Co., Schenectady 5, N. Y.*

GENERAL ELECTRIC

452-61

(BRANDES, *con't. from page 93)*

thrown into operation at 3:45 A.M. on October 12, 1934.

In 1942 the Army Transportation Corps sought the services of Mr. Brandes, but the medics uncovered an ancient case history, so Bill compromised by "joining up" with the Office of Defense Transportation, in its Regional Office at Dallas, Texas. He was Senior Transportation Specialist in that office from May, 1943 to September, 1944, except for a 90 day sojourn as Ass't. Regional Director at Kansas City, Mo. Anticipating the war's end, Bill in September, 1944, accepted appointment as Traffic Engineer and Director of the Department of Traffic Control for the City of Dallas, Texas, which position he now holds. With splendid cooperation from Dallas municipal and civic officials, Mr. Brandes has built up an efficient organization to tackle everyday and future traffic problems in this rapidly growing city.

While deep in the heart of Texas is a long way from Iowa, where Bill Brandes originated, and where he graduated in electrical engineering from the State University, he has also gained a broad experience in the transportation field. That is evidenced in his biography in "Who's Who in Transportation and Communications" (1942). The great southwest Mr. Brandes declares is an almost virgin territory for traffic engineers and invites his many friends and colleagues to see for themselves.

(ECKER, *con't. from page 93)*

search engineer to his present position beginning in 1944. As Director of Research and Planning, he is responsible for engineering economy reports on all phases of transit operations, for improvements in service and routings and street traffic conditions. He has numerous other administrative duties relating to budget developments and controls, tariffs, real estate and liaison work within the company and with governmental and other agencies, plus various "trouble shooting" assignments. The complexity of his work is to some extent indicated by the fact that the Capital Transit Company now operates some 2,000 vehicles which carry nearly a half-billion revenue passengers annually. Mr. Ecker is also chairman of the company's post-war planning committee.

Jack has not only attained high professional standing as an engineer, but he is active in many civic affairs of the nation's capital. He is well known for his work as a member of committees of the Washington Board of Trade, as a member of the District of Columbia Traffic Advisory Council, and for his advisory work with the National Capital Park and Planning Commissions. He is a member of the Transit Committee of the Highway Research Board and of the Fare Research Committee of the American Transit Association.

Societies and clubs of which Jack is an active member include the Cosmos Club, American Society of Civil Engineers, Washington Society of Engineers, Society for Advancement of Management, Highway Research Board, Chevy Chase Club, Kiwanis Club, Washington Board of Trade, Washington Building Congress and the *Institute of Traffic Engineers.*

The father of a son and two daughters, Jack is well known among his neighbors for his art and photography work and as a swimmer. Just why he "had to give up golf", he says, remains an unsolved mystery.

Overheard between two Traffic Signal Engineers just after the Grand Rapids Convention:

Say, did you see the new "Marbelite" Universal Controller at the convention?

Did I see it? I'll say I did. I think it is just what traffic maintenance engineers have been waiting and wishing for. Everything is so simple. Both mechanical and electrical parts are practically fool proof. And it can be used in an interconnected or non-interconnected system.

Yeah, but what impressed me was its flexibility. It can be expanded up to 18 periods and 16 circuits without the replacement of any mechanical operating parts.

That's right, and a new type of solenoid is employed which eliminates any spring or mechanical stop action and the plunger movement is controlled by purely magnetic action.

It is also driven by a brand new type of permanent magnetic non-coasting motor. Any number of non-interconnected synchronous type controllers will remain in step for well over a dozen interruptions when connected to one transformer line.

Those dial keys are also an innovation—each key locks itself into the dials and the dial is closed by a window to make it tamper proof.

Yes sir. That controller is just about tops—the best I've ever seen and it's so simple to understand and maintain.

Well it's about time some one developed a good simple traffic controller. Marbelite will really go to town with this new controller.

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